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ARCHÆOLOGICAL

EXPLORATIONS

OF

TENNESSEE.

BY

F. W. PUTNAM.

[From the Eleventh Annual Report of the Peabody Museum of American Archæology and Ethnology, Cambridge, 1878.]

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ARCHÆOLOGICAL EXPLORATIONS IN TENNESSEE.

By F. W. Putnam.

During the month of September, 1877, as stated in my general report (p. 203), friends in Nashville tendered to me such facilities for archæological research in central Tennessee as enabled me to make extensive explorations in several localities, the results of which are briefly recorded in the following pages.[1]

My first examination of the ancient stone graves, which are so numerous in the state of Tennessee as to form a marked feature of its archæology, was in the prehistoric cemetery on Zollicoffer Hill. It was soon found, however, that the graves at this place had been so much disturbed as to make any work done here rather unsatisfactory as to results. The building of Fort Zollicoffer on this hill was probably the first cause of disturbance of the cemetery, while its easy access from Nashville has recently led many curiosity hunters to the spot.

One of the graves at this place had been opened by a friend a few days before my visit, and in it he had found the remains of what he believed to be a mother and child. The few bones he collected and kindly gave me, however, showed conclusively that

[1] Prof. Joseph Jones in his elaborate and interesting work, "Explorations of the Aboriginal Remains of Tennessee," Smithsonian Contributions, No. 259, 1876, gives much valuable information about the archæology of the state, and describes and figures many articles found in the graves. In this report I do not intend to enter into a discussion of the facts, but simply to give the results of my own explorations in Tennessee. This limitation is also advisable for the reason that large collections, made under my direction, have been received from the state since the close of the year covered by this report, which will be referred to in the next Annual Report. I must, however, state that it was most gratifying to me on reading Prof. Jones' work, which, though dated 1876, was not received at Cambridge until October, 1877, after my return from Tennessee, to notice how our similar explorations had led to the collection of nearly identical material, and the corroboration I had obtained of many of the facts which Prof. Jones has so well presented; although, as would be expected from two persons having nearly identical material in hand, but looking upon the evidence furnished from different stand points, I am forced to differ from him in some of his conclusions, particularly so in regard to the evidence of syphilis prevailing in this old nation of Tennessee. Undoubtedly very many of the human bones show the results of disease, but it may be that the disease was not syphilis, and that other diseases affect the bones in a similar manner.

while those belonging to the adult had been long buried, and were probably those of the body for which the grave had been made, those of the infant were on the contrary of a much later date, and were evidently of a child that, not many years ago, had been placed in this old grave, which was near the surface and formed a handy place for burial. This fact is mentioned simply to show the caution with which such examinations must be made in order to secure trustworthy results.

One grave which I opened at Zollicoffer Hill, though only a few inches under the surface, had escaped former disturbance. This grave was formed of six slabs of stone on one side and five on the other, with one slab at the head and one at the foot; forming a grave five feet eight inches in length, inside measure, and six feet outside. The average width being eighteen and the depth sixteen inches. The side stones were unevenly broken to dimensions of eight to fifteen inches in width, by about twenty inches in depth and two, or three inches in thickness. The two stones forming the head and foot of the grave were larger than those on the sides. All these stones extended a few inches below the floor of the grave, which was made by placing thinner and smaller pieces of stone in such a manner as to form a level bottom to this cist. Five slabs of stone, larger than those used on the sides, rested on the nearly even edges of the upright stones, and, slightly overlapping, formed the cover or top of the grave.

Further examinations in other localities showed that all the stone graves were made after this plan, the only variation being in the size of the stone slabs and in the dimensions of the graves. Any rock was used that could be easily detached in slabs of convenient size. That most common to the localities I visited was limestone and sandstone.

In the grave I have described the body had been laid on the back and extended at full length, occupying nearly the whole length of the grave, showing that the person when living was about five feet, five inches in height.

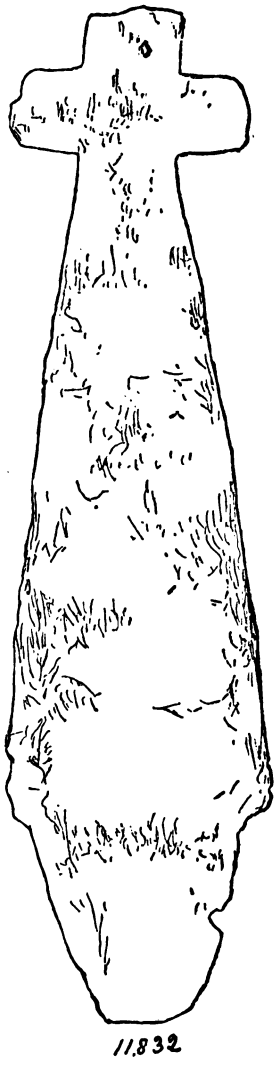
From many measurements of the graves taken during my explorations, I am convinced that the people buried in these stone graves in Tennessee were of ordinary stature. Occasionally a grave seven feet, and even of eight feet in length was found, but in such cases there was always a space of several inches between the bones of the feet and the foot-stone, and between the skull and the head-stone.

In the grave specially mentioned above, the only articles found were fragments of two vessels of clay, which had been placed in the centre of the grave, and a pointed implement made of deer's horn (11830).

In another grave of the same character and about the same size, located by the side of the first, and also with the covering stones in place, the remains of the skeleton of an adult were found, and with it, in about the centre, on one side of the skeleton, were the fragments of an earthen dish. On the breast of this skeleton was the ornament of copper here figured of its actual size (Fig. 1). The cross-like form of this ornament may give rise to the question of its derivation; and had any article of European make, such as glass beads, brass buttons, etc., so common in Indian graves subsequent to contact with the whites, been found in any one of the hundreds of graves I opened in Tennessee, I should consider the form of this ornament the result of contact with the early missionaries; but, from the total absence of articles denoting such contact, I think it must be placed in the same category with the "tablet of the cross" at Palenque, and be regarded as an ornament made in its present form simply because it was an easy design to execute and one of natural conception.[2]

The ornament is evidently made from a piece of native copper hammered and cut into shape. The small perforation at the upper border still contains a fragment of the string by which the article

Fig. 1.

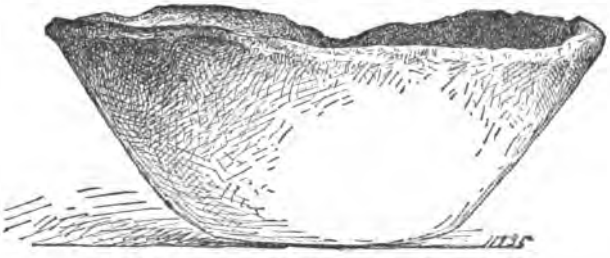


Ornament of Copper, from grave on Zollicoffer Hill. Natural size.

[2] Prof. Jones mentions finding the cross represented in several instances upon articles of shell and of copper found in the graves he examined, and has discussed the question of its origin. l. c., p. 77.

was suspended, preserved by the action of the copper; and on one surface of the copper are slight evidences of its having been in contact with a finely woven fabric, thus showing that this ancient

Fig. 2.

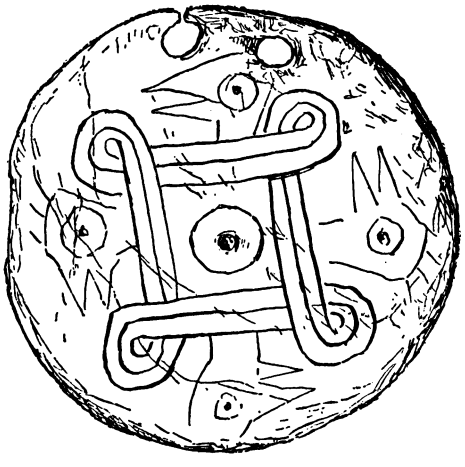


Dish from grave on J. M. Overton's place. ½.

people, who were well advanced in the ceramic art, also possessed the knowledge of weaving.

On the large estate of John M. Overton, Esq., eight or nine miles south from Nashville, there was formerly an extensive cemetery, and many graves are still to be found about the hill on which stands Mr. Overton's hospitable residence, known as the "Traveller's Rest." At this place Prof. Joseph Jones obtained many of the articles which he has described and figured in his valuable work.

Fig. 3.



Ornament of Shell from grave on J. M. Overton's place. Natural size. (11817.)

It was my good fortune to receive the kind attentions of Mr. Overton during a short visit to this interesting locality, and thanks to Mrs. Overton, and her gardener, Mr. Edward Cross, I was made the recipient of several very valuable specimens which had

been taken from graves on the place, and also had an opportunity to open two graves myself, from each of which I secured pottery, and from one a cranium.

One of the articles of pottery (11835) is here represented, of one-half of its diameter (Fig. 2). This is a well-made, rather thick dish, without ornamentation, and was found by the side of the skull.

A short time before my visit, a stone grave was removed by Mr. Cross, and in it were found two interesting articles which he gave to me. One of these is a highly polished discoidal stone, two and a half inches in diameter and one and one quarter thick, made of white quartz (11818); the other is the shell ornament here represented, of actual size (Fig. 3).

This ornament is made from a large marine shell, probably a *Busycon*, and is symmetrically carved on the slightly concave surface as shown in the figure.

The four heads of birds, resting on the rectangular central figure, are represented by simple incised lines. Two holes near the edge of the disk indicate that the ornament was suspended.[3]

Fig. 4.

11819

Flint-point from Mr. Overton's place. Natural size.

Mr. Cross also gave me a spear, or arrow-point of jasper with serrated edges (11819), which is represented, of actual size (Fig. 4). This flint-point was found while cultivating the land in the vicinity of the graves, and with two polished celts (11816), presented by Mrs. Overton, were probably once enclosed in graves which had been destroyed in former years.

In connection with the shell ornament found in the stone grave

[3]Since this was sent to press there has been received at the Museum from Mr. E. Curtiss, half of a shell disk found on the surface in Humphreys Co., Tenn. This shell disk has carved upon it figures identical with those on the one described above from Overton's farm. The two localities are between 70 and 80 miles apart and at both places the number of stone graves indicate large settlements. Can these carved shells be regarded as totems? Several distinct patterns are now known, of each of which two or more examples have been found.

on Mr. Overton's place, I give the following illustration (Fig. 5) of a similar ornament (11801) which was given me by the venerable Col. J. D. Morgan, of Nashville, in whose possession it had been for some time. Col. Morgan was not certain that this ornament was taken from a stone grave, though the probability is that it was so found in the immediate vicinity of Nashville. This disk is made from the shell of *Busycon*, and is larger than the one given me by Mr. Cross. Figure 5 represents this ornament, of one-half its diameter, and will give a better idea than words of the design carved upon it. Like the other, it has two holes for suspension.

Fig. 5.

Ornament of Shell from Nashville. ½.

Prof. Jones has described and figured (p. 43, figs. 7 and 8) a shell disk, found in a stone grave on the banks of the Cumberland, opposite Nashville, the carving on which is identical in its design with that on the one here figured, the only difference being in the number of circles in the two groups. In Prof. Jones' specimen the outer ring contains fourteen circles, and the inner nine, while in our specimen there are thirteen and six respectively. The central spiral figure is the same in both.[4]

Many of these carved disks of shell have been found in the graves and mounds of Tennessee and Missouri, and, with the identity of the associated pottery from the two localities, go far to prove the unity of the people, notwithstanding some slight differences in burial customs.

On the farm now owned by Miss Gertrude Bowling, about four and a half miles southwest from Nashville, were five burial

[4] In relation to this central figure Prof. Jones has ventured, on p. 137 of his work, a comparison between what he calls the "Symbolic divisions of the circle by the ancient stone grave race and mound builders of Tennessee," and the "Chinese figure Taeheih."

mounds, which, thanks to the kind permission of Miss Bowling, were thoroughly explored. Of these, I personally conducted the work on one of the largest, which was about fifty feet in diameter and between five and six in height. A second and part of a third were examined by Mr. Curtiss under my direction.[5]

These five mounds, containing the graves of from six to eight hundred persons, were probably the burial places of a former settlement in the immediate vicinity, all other traces of which had long since been destroyed by the cultivation of the land. Not far from this locality, as I was informed, are the remains of a cemetery where the graves were located on the side of a hill; a well known mineral spring is situated within half a mile of the mounds and a small winding creek is near by. The locality must have been a desirable one for a permanent village and, like all other such sites met with in the state, was well chosen for the natural advantages offered.

In the mound which I explored, over two hundred bodies had been placed, with one exception, in stone graves of various sizes. The single exception of a body buried without the care which was used in all other burials in the mound is of interest, especially as there was no indication that any article had been placed with the body, and while engaged in carefully getting out the skull of this skeleton, I could but feel that it was that of some poor outcast, who had not been considered worthy of a stone grave. The skull of this individual is noted in the table of measurements on p. 224, under No. 11918, and belongs to the ordinary type of skulls from the graves.

The mound itself was formed by several irregular layers or tiers of stone graves, the lowest of which had probably been placed irregularly round the grave first made. These lower graves were formed by making an excavation sufficiently deep to support the side-stones of the grave, but not so as to cover the overlying top-stones, at all events not more than an inch or two. On the graves, offerings of food, etc., probably had been left, which would account for the many fragments of pottery, the several stone implements and other articles found upon the covering stones, and by the sides of the graves.

Below several of the graves, near the centre of the mound, and

[5] Major Powell and his party explored the other mounds.

as nearly as could be determined on the original surface of the ground, was a bed of ashes several inches deep, in which fragments of pottery and a few bones of animals were found. In at least two of the mounds near this, corresponding beds of ashes were noticed. Over this bed of ashes were several graves, the stones of which they were formed extending but a few inches into the ashes, thus showing that these stone graves were often formed above ground. After these early graves were covered by a few inches of soil, a second tier was placed above them, and eventually this was followed by a third and fourth.

At the highest point on the mound, a few graves were found, which, though nearly destroyed by the growth and falling of trees, probably belong to the latest, or fifth tier of graves.

Over the mound was a recent growth of trees, the largest of which was a black walnut, standing on the very centre with its roots reaching down the sides of the mound and penetrating some of the upper graves. This tree was eight feet four inches in circumference at its base, and seven and one-half feet, at a height of four feet; but, as a section of the trunk only showed between sixty-five and seventy rings of growth, the tree is not of value in estimating the age of the mound, for it is historically known that this region was without Indian inhabitants one hundred and fifty years ago, and, uncertain as we are as to the period when they were constructed, it is certainly safe to state that the mounds were not made after that date.

The mound, formed in the method stated, by the gradual accumulation of the stone graves, was conical in shape, as each irregular tier of graves had a smaller number than that below it. The lower graves were thus, of course, the oldest, though there was little difference in regard to the condition of the bones, and the contents of graves side by side in any of the layers were in entirely different degrees of decay.

It was noticed that no method was followed in placing the head of the body in any particular direction, though in the lowest tier the majority were placed with the head towards the centre of the mound, but even among these oldest graves one was occasionally found at right angles to that adjoining. In the upper layers, the graves were placed in all directions, sometimes one would be found lying lengthwise directly over a grave below it, and others were resting crosswise upon two, three or even four graves in the

tier below. It was particularly noticed that without regard to the proximity of other graves, each was constructed perfectly independent of those adjoining, notwithstanding the fact that the side or head stones of adjoining graves were often in contact. Generally, however, there was a space of about six inches between the graves, and often the space was one or two feet.

The following transcript of my field notes, for two days of the six that I spent with my diggers in examining this mound, will give sufficient details to show the character and contents of the graves in this and the adjoining mounds. In designating the several tiers, the lowest is counted as the first, and so on to the fifth, or most recent. The graves here recorded were principally on the eastern side of the mound.

Grave 1. 1*st tier*. Inside measure, 6 feet 9 inches in length, 1 foot wide, 9 inches deep. An adult, body extended, lying on back, head to west. Bones of the skeleton very dry. Skull taken out perfect, but fell to pieces in cleaning, pieces saved with all the teeth. Took out long bones, part of pelvis, vertebræ, etc. Fragments of a pot, a broken arrowpoint, and three flint chips in grave. Top of grave covered by four large slabs which projected over the sides.

Grave 2. 1*st tier*. A child of four or five years, body extended, head to west. Skeleton all gone except portions of left parietal and occipital, several teeth and piece of femur. No article in the grave. Length 3 feet 9 inches, width 11 inches, depth 9 inches. Side rocks extending several inches below the bottom of inside of grave. Two rocks on top.

Grave 3. 1*st tier*. Grave of an old person, body extended, head to west, 6 feet 9 inches long, 1 foot 8 inches wide. Skull, pelvis and long bones taken out in good condition. Nothing but skeleton in the grave.

Grave 4. 1*st tier*. Adult, body extended, head to west, 6 feet 6 inches long, 2 feet 2 inches wide. Took out skull in pieces, long bones, fragments of pottery and shell of Unio.

Grave 5. 1*st tier*. This grave, though 6 feet 6 inches long and 2 feet 1 inch wide, was that of a youth or a woman of delicate frame. With the exception of portions of the long bones, the skeleton had nearly decayed. No article in the grave.

Grave 6. 1*st tier*. 3 feet long, 2 feet 5 inches wide. A young

child, all the bones decayed except the shafts of the long bones of arms and legs. No articles in grave.

The grave of an adult, designated as No. 1, was between the two graves of children, Nos. 2 and 6.

Graves 7 *and* 8. 3*rd tier*. These graves were close together, of same size, the indications being that they were made at the same time. Each grave was 2 feet by 1 foot 4 inches, and each covered by a single slab. No. 7 contained bones of an infant in such position as to show that the body had been extended when placed in the grave. Several of the bones in a good state of preservation, and were saved. In this grave found fragments of pottery and a mussel shell.

In No. 8, the bones of the head and body were in a compact mass of 12 by 6 inches, and had the appearance of having been buried in a bundle. In this grave were also fragments of pottery.

Grave 9. 1*st tier*. 7 feet long. Adult. Long bones, pelvis and under jaw saved. A ring of pottery 1½ inches in diameter resting on under jaw.

Grave 10. 1*st tier*. That of a child, 3 feet long, 1 foot wide. Part of skull and the long bones saved. No articles in grave.

Grave 11. 1*st tier*. Adult, 7 feet long. Skull and long bones saved. No sign of pottery or articles of any kind.

Grave 12. 2*nd tier*. Long grave. Skeleton too far decayed to save any portion. No articles in grave.

Grave 13. 2*nd tier*. 3 feet 8 inches long, 14 inches wide, 9 deep. A child about five years old. Long bones and under jaw saved. No articles in grave.

Grave 14. 3*rd tier*. 3 feet long, 9 inches wide, 7 deep. That of a child. Portions of skull and the long bones saved. No articles in grave.

Grave 15. 2*nd tier*. 7 feet long, 11 inches wide, 6 inches deep. Adult, body extended on back, head to north. Skull, long bones and pelvis saved. The following articles were found in space between the skull and head stone: —

Large spear point and knife of flint; several flint chips; two awls made of deer's horn, and two others made of bone; a shell bead; tooth of a beaver, tooth of a carnivorous animal; wing bone of a bird.

Grave 16. 2*nd tier*. Next west of 15 and of about the same size, head to north. Long bones and jaw saved. Fragments of pottery.

Grave 17. *2nd tier.* Old person, head to west. Skull, long bones, pelvis and other bones saved. Two flint chips in grave. No signs of pottery.

Grave 18. *3rd tier.* Small grave containing portions of much decayed skeleton of a youth. Shell of Unio, and a flint chip in grave.

Grave 19. *4th tier.* On the western side of the mound and the upper tier at this place. The covering stones of this grave had been disturbed. Head to west, feet towards centre of mound. Nothing saved.

Grave 20. *1st tier.* In part under Nos. 15 and 16. Youth of about eighteen years. Jaw and arm bones saved. A slender flint drill, fragments of pottery and a few flint chips in grave.

Grave 21. *1st tier.* About in centre of mound and running north and south. 6 feet long. Body extended, head to north. Skull saved. No articles in grave.

Grave 22. *1st tier.* 6 feet 3 inches long. In same line with 21, and the head stones of the two graves in contact. Head to south. The skull and some of the long bones saved. Flint chips in grave.

Grave 23. *1st tier.* Grave of a child, 3 feet 2 inches long, 12 inches wide, 5 inches deep. Head to west. Bones much decayed. None saved. No articles in the grave.

Grave 24. *1st tier.* On same line with grave 23. Foot stone of 24 in contact with head stone of 23. Two tiers of graves over 23 and 24, the graves resting on 23 and 24 lying east and west, while those in the upper tier were lying north and south. The position of this grave and the condition of its contents, mark it as one of the oldest in the mound, though on the eastern side of the centre. The grave was very dry and the bones had nearly all been reduced to dust. What remained consisted of a few teeth, a fragment of the femur, small fragments of the tibiæ, and portions of the spongy part of a few of the bones. A pipe made of pottery and a few flint chips, were found near the teeth and had evidently been placed near the head.

From these notes it will be seen that from comparatively few of these old graves can either crania or other bones be obtained, and those that are removed require long and patient work. It will also be noticed that very few graves contained pottery or other articles, though this would not indicate any neglect on the part of

friends, as it is probable that many perishable articles were placed with the dead in the graves, while the numerous fragments of pottery, the stone implements, etc., found among the graves, as already noticed, suggest that offerings were placed over the graves as well as within them.

On the southern side of this mound, owing probably to its being always comparatively dry, the pottery was in a better state of preservation, and numerons perfect specimens were obtained from the graves. In two instances, one on the southern, and the other on the western side of the mound, there were double graves. That is, two bodies had been placed in a grave of the usual length but wider than ordinary. In one of these, the skeletons were extended at full length and crossed each other, the skulls being at opposite ends of the grave. In the other the skeletons were side by side, but one of them was without the bones of the feet.

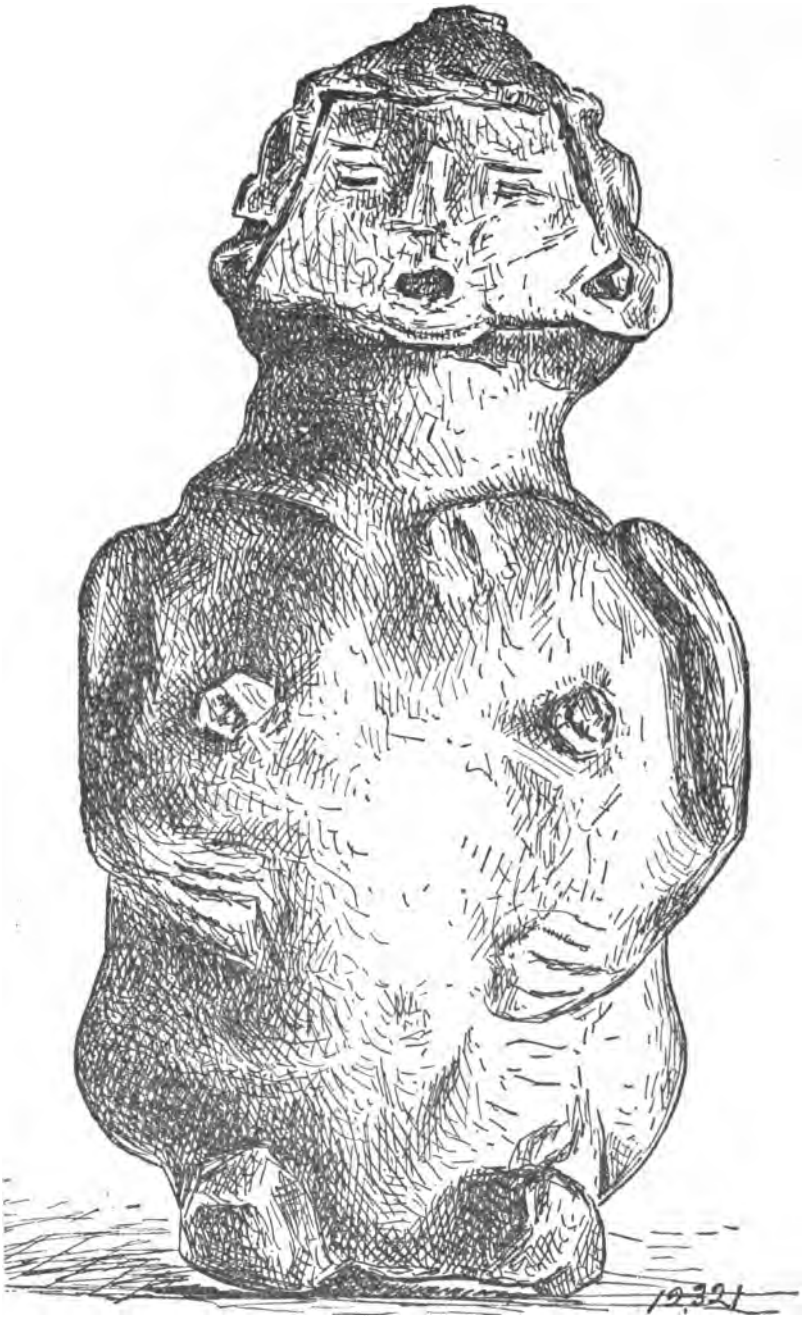
In several instances the skeletons in graves which were about two feet square, were those of adults, and showed by the compact arrangement and confusion of the bones, which were out of all natural connection, that the bones must have been buried after the flesh had decayed. Such instances were probably the burial of bones brought from some other place.

The finding of two distinctly marked forms of crania in this mound is interesting, and of course suggests the very probable reception into the tribe of persons of another nation. The collection of crania from this mound, and other stone graves, seems, to me, to show that while the ordinary form of the crania of this stone grave people was such as would bring them among the short headed nations, they were, by intermixture with a long headed people, often of the orthocephalic type, though individual variation would also cause many heads of a purely brachycephalic nation to pass into the orthocephalic. The presence of several dolichocephalic crania among the others that were collected from the stone graves, furnishes data suggesting the intrusion of that form.

Several bones collected in this mound show the effect of disease of some kind, and are such as would be generally called syphilitic; but several pathologists who have examined them unite in stating that they do not prove the existence of syphilis, as other diseases than syphilis might leave such effects.

The following summary of the collection obtained from this mound, in which about two hundred and fifty persons had been

Fig. 6.



Jar from Stone-grave Mound, Miss Bowling's farm. Natural size.

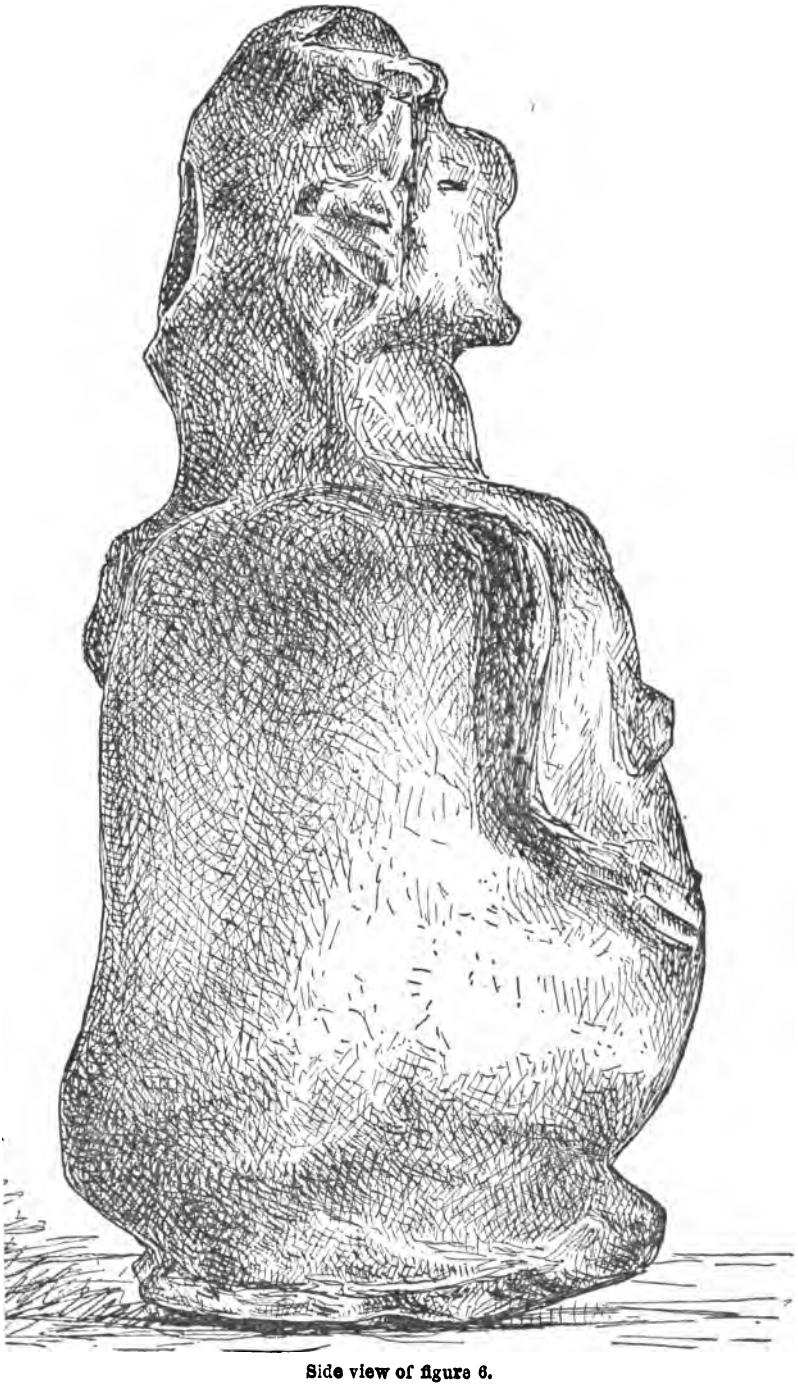
buried, will convey an idea of the contents of the graves, and I may add that the other mounds on Miss Bowling's farm, yielded a corresponding amount of material of the same character:

Portions of fifty-four different skeletons, including many long bones of arms and legs, six sets of pelvic bones, and twenty-five skulls; twenty-four whole or nearly perfect vessels of pottery, nine lots of fragments of pottery from the graves, fifty-nine pieces of considerable size picked out of the dirt outside of the graves; nine stone implements from the graves and seventeen outside of them; eight lots of flint chips from as many different graves; two awls made of deer's horn, four made of bone; four teeth of animals, two of which were perforated for suspension; two shells of turtles; one wing bone of a bird; one animal bone; all from graves; six spoons made out of shells of fresh water mussels (*Unionidæ*), thirty shells of Unionidæ and five lots of *Melania;* two lots of small shells, *Olivella*, perforated; four small lots of shell beads, all from graves; one pipe made of pottery, from a grave; two rings made of stone, found in one grave, and one made of pottery, found in another.

The pottery is generally well made, though some vessels are much ruder than others. It is usually of a dark gray color, and composed of clay mixed with finely pounded mussel shells. As a rule very little attempt at ornament was made on the vessels from this mound and others adjoining, and only one of the peculiar human shaped vessels, so characteristic of the pottery of this class, was found in the mound. This water vessel, or "idol" as these vessels representing the human form have been designated, is of special interest from its very rudeness of construction and the manner in which the hair, or head-dress is represented. The two views of this vessel (Figs. 6 and 7), representing the front and profile, of natural size, give a far better and more accurate idea than could any description. As will be noticed in figure 7, the opening of the vessel is at the back of the head, and the woman is represented as resting on her knees. This rude attempt in plastic art must not be considered as a fair example of the artistic capabilities of this people, for there are several other vessels modelled after the human form, in the collection from Tennessee now in the Museum, and among them is not one so rude and uncouth as this.

In direct contrast to this grotesque figure are the two beautiful and symmetrical vessels here represented (Figs. 8 and 9), of one-

Fig. 7.



Side view of figure 6.

half their diameter. These jars are made with care and skill;

Fig. 8.

Jar from Stone-grave Mound, Miss Bowling's farm. ½.

their good proportions and well made curves equalling, and closely resembling in outline, some of the best of the early forms

Fig. 9.

Jar from Stone-grave Mound, Miss Bowling's farm. ½.

of the Old World which were produced by the aid of the wheel, while their very simplicity is perfection of the art. Smooth and

well finished, and standing firm and steady, they are in every way superior to the usual vessels of this character which have been taken from the graves and mounds of the southwestern states, as shown by the two following examples of the ordinary type (Figs. 10 and 11). The vessels represented by figures 8, 14 and 15 were taken from graves in mound 2, on Miss Bowling's place; all the other figures, here given, represent those found in graves in the mound of which special mention has been made in the preceding pages.

Another, and very common form of vessel from the stone graves, is represented by figures 12 and 13. These are comparatively

Fig. 10.

Vessel from Stone-grave Mound, Miss Bowling's farm. ½.

well made cooking pots, furnished with holes, through which strings were probably passed, by which the vessels could be suspended.

By far the most common of the vessels found in the graves, are cooking pots, of various sizes, furnished with two handles. Many of these are rudely made and resemble the two toy vessels which are shown, of actual size, in figures 14 and 15. Others are nearly symmetrical and of more graceful shape, as shown by figures 16 and 17. Still better, and exhibiting a higher degree of workmanship, is the one represented in figure 18.

Figure 19 expresses an early style of ornamentation, consisting of a line of punctures, which give relief to the waved outline of the body of the vessel where it joins the neck.

Figure 20 illustrates a form of vessel of which we have numerous examples, showing the peculiar method of ornamentation by pinching up the clay, in a regular manner, so as to form a series of little knobs, in this case arranged around the body of the vessel just below the neck.

Other forms of vessels were, also, found in this mound, some of which were dish and bowl-shaped, like those figured farther on

Fig. 11.

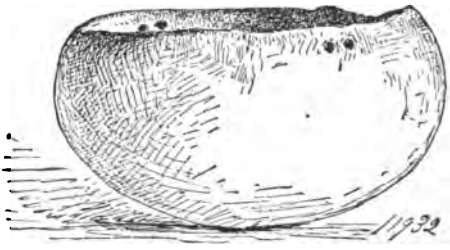
Vessel from Stone-grave Mound, Miss Bowling's farm. ½.

from the Lebanon mound, and the one from Mr. Overton's, represented by figure 2, which is a common shape. Among the fragments from outside the graves, and particularly in the ash bed, were several of a thick and rude character, evidently of large cooking pots.

With these articles of pottery should be mentioned the ring made of the same material, which was found in contact with an under jaw, in one of the graves; also the pipe, of which figure 21

is a representation of full size. This was the only pipe found in the mound, and only two or three others, all of this material and shape, were obtained from the other mounds on Miss Bowling's farm.

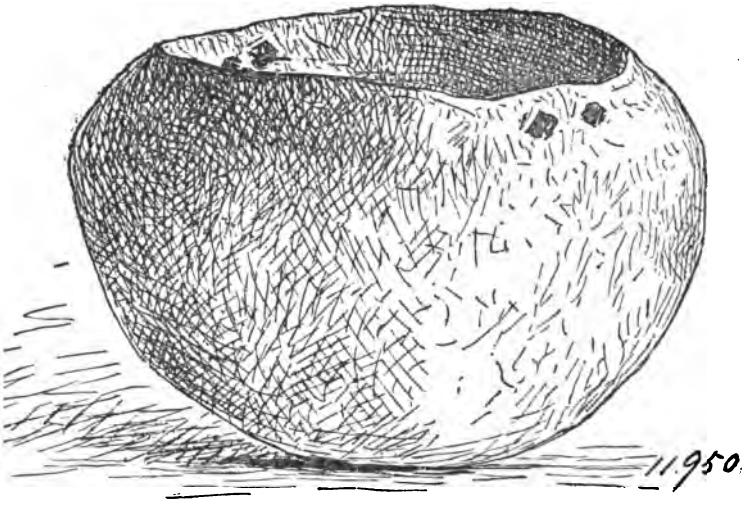
Fig. 12.



Vessel from Stone-grave Mound, Miss Bowling's farm. ½.

Among the articles of special interest found in the graves, were three rings of nearly uniform size, though made of different materials. One of these (Fig. 22) is made of a hard, green steatite and is represented of actual size. It is perfectly symmetrical and highly polished, one and three-quarters inches in diameter

Fig. 13.

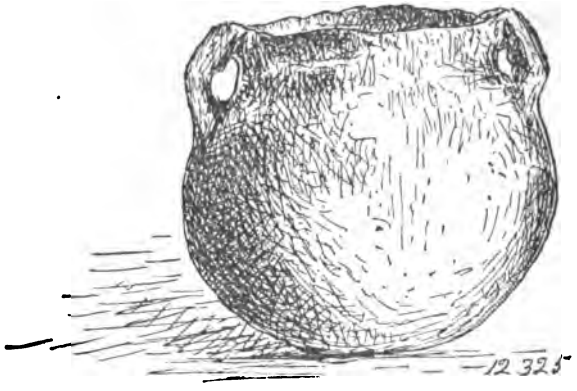


Vessel from Stone-grave Mound, Miss Bowling's farm. ½.

and three-quarters of an inch wide. As shown by the figure, the central portion of the outer surface is cut out so as to leave a ridge around each edge. The inner surface is slightly convex, the

edges being rounded outwards. A similar ring of steatite of about the same size, from Pennsylvania, has been figured by Mr. Rau,

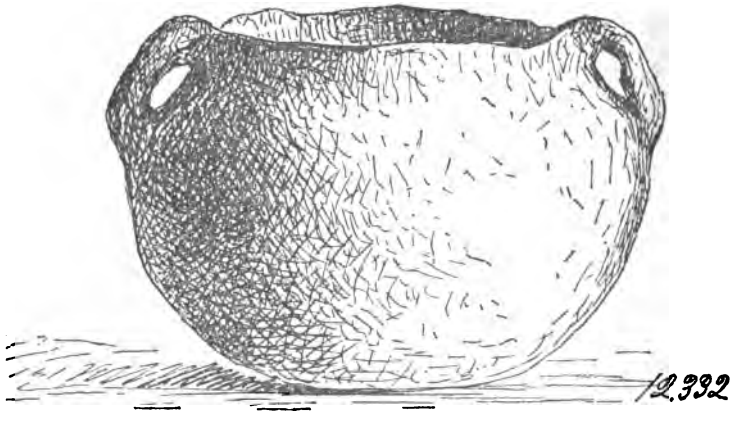
Fig. 14.



Vessel from Stone-grave Mound, Miss Bowling's farm. Natural size.

and a few others, made of various materials, have been found in mounds and on the surface. The specimen here figured was in

Fig. 15.

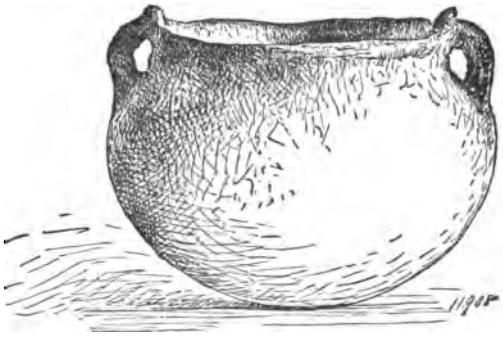


Vessel from Stone-grave Mound, Miss Bowling's farm. Natural size.

close contact with the under jaw of the elderly person buried in the grave, and in the same grave, near its centre, was another ring

made of slate. This second specimen is one-eighth of an inch less in diameter and in width, than the one made of steatite, and differed from that simply in not having the projecting rims, it being perfectly flat and smooth on its outer surface.

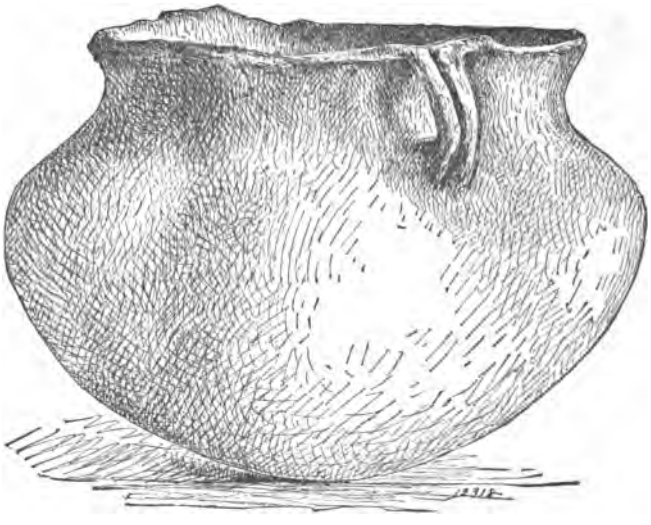
Fig. 16.



Vessel from Stone-grave Mound, Miss Bowling's farm. ½.

The third example of these rings is made of well burnt pottery, and while it is of the same external diameter as the one made of steatite, the thickness is slightly less. The width is the same as the one figured, and its outer surface is flat like the specimen made of slate.

Fig. 17.

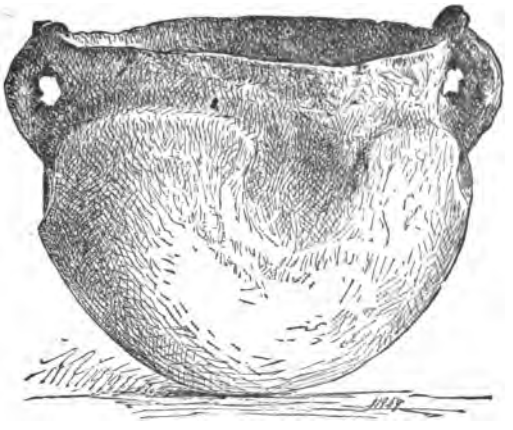


Vessel from Stone-grave Mound, Miss Bowling's farm. ½.

This pottery ring, like the one made of steatite, was found in a grave and close to an under jaw.

From the fact that two of the three rings were found in the position stated, it may be surmised that they were labrets, and were in the lips of the individuals when buried. Their size is not as large as some labrets that have been described as used by Indians of the northwestern coast, therefore there is no objection to the theory on account of the size of the rings, although, as they were found in only two of the many graves, their scarcity indicates they were not in common use. Of course, these rings may have been for an entirely different purpose than I have suggested, and the contact of two of them with the under jaws may be accidental.

Fig. 18.



Vessel from Stone-grave Mound, Miss Bowling's farm. ½.

Implements made of stone, though often found on the surface in the vicinity of the old cemeteries of the Cumberland Valley, were not very abundant in these mounds, and were seldom found in the graves.

Out of thirty-one chipped implements obtained from the mounds on Miss Bowling's farm, explored for the Museum, only five were found in the graves. The position of the others among the graves, however, shows that, like many of the articles of pottery, these stone implements had been left upon, or by the sides of the graves and hence are contemporaneous with them.

The chipped implements are of the several varieties of hornstone and jasper, of which the majority of such articles found in the southern and western states are made. They are of various sizes, patterns and perfection of finish, such as are usually found together. One of the largest of these, which can be regarded as a knife, scraper, dagger, or spearpoint, as fancy may incline, is represented of natural size (Fig. 23). This was found in grave 15, with several other articles, as already mentioned. Two other

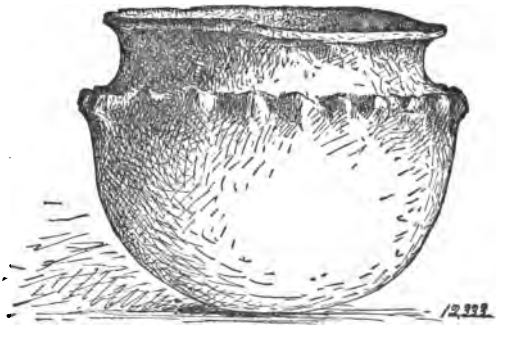
large implements (12339) would be classed as scrapers. They are five inches long and from two, to two and a half wide.

Fig, 19.

Vessel from Stone-grave Mound, Miss Bowling's farm. ½.

One of them is made from a piece of black hornstone which has an impure nodule on one side, that must have proved far less tractable to the worker than the rest of the stone, and may indicate that the scraper was used without a handle of wood, for the nodular part fits well to the palm of the hand and allows the opposite side to be freely used when so held.

Fig. 20.



Vessel from Stone-grave Mound, Miss Bowling's farm. ½.

The other scraper is made of a gray hornstone, and its highly polished edges and surfaces show that it had long been used, probably, simply as a hand-stone.

A still ruder form of scraper (11959), of the same material as the last, was found between the graves. This specimen is three and three-quarters inches in length, by two and a quarter in width, and nearly an inch in its greatest thickness. It is as rudely made as many of the implements from the gravel bed at Trenton, described by Dr. Abbott, although of a material which is easily worked into delicate forms.

Another specimen (12338), of a light mottled gray hornstone, is a well made scraper with a bevelled edge, and its size is such as to suggest that it had been attached to a handle. It is two and three-quarters inches long, by one and a half across the

Fig. 21.

Pipe of Pottery, Stone-grave Mound, Miss Bowling's farm. Natural size.

bevelled portion, the scraping edge of which is slightly convex. The opposite end of the implement is somewhat pointed and thinner at the edges.

From the scraper last described, the transition is easy to a small leaf-shaped implement of similar material, carefully chipped to a point and thin edges. This implement (12340) is an inch and three-quarters long, not exceeding in its greatest width three-

quarters of an inch, flat on one surface and having a ridge along the opposite centre. While it might be classed as a leaf-shaped arrowpoint, it is more likely to have been mounted on a short handle for use as a knife, for which it is well adapted by its shape, point and edges.

An implement of a gray hornstone, three and three-fourths inches long, one inch in width and one-half an inch in thickness in the centre, is interesting from

Fig. 22.

Ring of Steatite, Stone-grave Mound, Miss Bowling's farm. Nat. size. 11877.

its rather unusual shape, being pointed at both ends and decreasing in thickness in all directions from the centre to the cutting edges. This was found in the dirt between the graves, and is No. 12339 in the Museum catalogue. It is, in shape, like the implement figured by Prof. Jones (p. 138, fig. 75), but only about one-quarter of the size.

Passing to the spearpoints, knives and arrowpoints, there are several of interest, a few of which were taken from the graves.

Fig. 23.

Chipped Implement, Stone-grave Mound, Miss Bowling's farm. Nat. size.

The largest of these is a well-made, symmetrical spearpoint (11958), four inches long, one and three-fourths in greatest width, and one-fourth of an inch thick at its expanded base, which is perfectly straight and flat. The stem is slightly notched.

Another specimen (12337), as long as the one just described, is somewhat thicker, but only one and one-fourth inches wide. This has a narrow stem without side notches.

Ranging between these spearpoints and the small arrowheads, are ten perfect and several broken implements that may be classed either as spearpoints, knives, or arrowpoints. The largest of these (11957), and the only one having an approach to barbs, is shown in figure 24, of actual size. As will be seen by the figure this is not a symmetrical implement, and its shape is such as to suggest its use as a knife, or daggerpoint.

Fig. 24.

11957

Chipped Implement from Stonegrave Mound, Miss Bowling's farm. Natural size.

Two specimens (12336–7) are about half the size of the last; one of these has a perfect and delicate point, and is slightly notched on the sides of the stem. Seven others are of various sizes and widths, between two and one-half and three inches in length, and all have short, straight, or slightly notched stems. One of these (12336, *a*) is much thinner and broader, in proportion to its length, than any of the others, and mounted on a handle would form a cutting instrument of no mean character.

Of three specimens from an inch and a quarter to an inch and a half in length, that were probably arrowpoints, one (12341) has a fine point, an expanded and slightly convex base, and a notched stem. Another (12341, *a*) has a straight stem and a proportionally longer and more slender point. The third (11890) is short and broad, with a convex base and that peculiarly shaped and abruptly made point which gives the impression that it was a broken specimen repointed.

Among the chipped implements of flint, was one that would

probably be classed with the drills, or perforators. This was found in a grave and is represented, of natural size, in figure 25.

Stone axes and celts have not often been found in the stone graves, though common among surface collections; and but two specimens were found in the three burial mounds explored under my direction, on Miss Bowling's farm. These are made of the same hard greenstone as the specimens obtained at Mr. Overton's place, previously described, and resemble them in size, shape and finish. The smallest is one inch thick, two inches wide and three and one-half long. The other is of the same thickness but is one-half of an inch wider and longer. The lower half of these small axes has been ground and polished on both sides, forming a central cutting edge like the modern steel axe. The opposite end is left rough, and was probably inserted into a socket of wood or horn, like those from the Swiss Lakes, some of which correspond very closely to the specimens from Tennessee, in material, shape and finish. Both of these specimens were found in one grave in the third mound.

Fig. 25.

11.670

Chipped Implement from Stone-grave Mound, Miss Bowling's farm. Nat. size.

In connection with these polished implements of stone, it is of interest to note a fragment of fine grained sandstone (12344), seven inches long, four wide and two thick, which I found between the graves, in the burial mound here particularly referred to. This fragment is evidently a portion of a sharpening and polishing stone that had been long in use. Its opposite surfaces were concave and were worn so deep by long use that they had nearly come together and to this fact the breakage of the stone at this particular point was due. On the sides and in the large concavity of one surface, are small grooves and several deeply cut lines, formed by rubbing implements of different kinds on the stone. As will be inferred, this is a very interesting specimen, illustrating the method of polishing stone implements, and with the three rings, probably as important as any obtained from this mound.

A water-worn stone (12345), six inches long, of oval form, was found in the second mound, and is of interest as furnishing conclusive evidence of the use of natural forms for the various purposes to which they may have been adapted. The stone in question is highly polished on one portion of its surface, and by holding it in the hand in the easiest manner, its adaptation for various rubbing purposes, which would cause the polishing of the particular portion showing use, is readily perceived.

Among the articles found between the graves in the mound was the half of one of the thin, flat stones with two holes, which are generally classed as personal ornaments.

In mound 2, three discoidal, or "chungke" stones were found. One of these is made of white quartz, highly polished, and is three inches in diameter. Another, about half an inch greater in diameter, is made of a compact gray sandstone, and shows signs of rough usage on its fractured edge. The third is three inches in diameter, one and one half thick, and is biconcave. The material is rather coarse, hard sandstone.

Near the ash bed, which I have already mentioned as having been found under the lower tier of graves, north of the centre of the mound, was found a fragment of talcose slate (11961), that probably once formed a portion of a cooking utensil of some kind, perhaps a large vessel, or possibly a baking stone like those found in the shellheaps of California. It is a well-worked piece of stone of nearly an equal thickness of about an inch, and slightly smoother on one surface, which is a little convex, than on the other. Near one edge there is a hole three-eighths of an inch in diameter. A careful search was made for other portions of this utensil, but only this was found and its weathered edges show it to have been a fragment when left near the ancient fireplace.

A small mass of burnt clay (12346) containing the impression of several reeds which had been placed parallel to each other, was also found in the bed of ashes.

Implements made of bones of animals have been found among the remains of prehistoric races in various parts of the world, and the graves, mounds and shellheaps of America have furnished many examples of the typical forms. Pointed implements made from the leg bones of animals, particularly of the metatarsal bones of various species of deer, are the most common forms, and specimens from the mounds and stone graves of Tennessee

are identical in shape and finish with those from the Swiss Lake dwellings.

One of these large implements (11904), here shown (Fig. 26), of one-half its diameter, was found in one of the graves in the first mound explored on Miss Bowling's farm.

Fig. 26.

Implement of Bone, Stonegrave Mound, Miss Bowling's farm. ½.

Other implements for like use were made from the antlers of deer, and two such (11895) were found in grave 15, which, as already mentioned, contained numerous articles. Another similar and pointed tool (11901), made from the leg bone of a large bird, was found in another of the graves in the same mound.

Splinters of bone were also utilized as awls and needles. Two such (11024), six and seven inches in length, and looking like knitting needles, were found in grave 25. These were probably made from pieces cut from the metatarsus of a deer and then polished and pointed. The smaller of these has a slight groove cut around the large end, as if for fastening a thread. The other, which is shown in figure 27, of one-half its length, is smooth and highly polished over its whole surface.

Fig. 27.

Implement of Bone, Stonegrave Mound, Miss Bowling's farm. ½.

Among the articles found in grave 15 were six small splinters of bone, which have been carefully pointed at one end, and, in those that are perfect, the opposite end is notched as shown in figure 28, representing a perfect specimen of its actual size. These small bones were found close to the skull, and I believe them to have formed part of a hair comb, from this fact and from their close resemblance to the teeth of combs found in the graves in Peru, and their still greater resemblance to the wooden teeth in the hair comb once belonging to the famous Modoc, Capt. Jack,

and now in the Museum. This view was further substantiated by the discovery, afterwards, in a grave at Lebanon, of several similar pieces of bone, also by the side of a skull.

Several other bones were found in the graves of mound 1, but with the exception of two wing bones of a large bird (11897), which may have been whistles, there was nothing to indicate that they were intended for special purposes.

Several teeth were also found, among them one of a large rodent, and two canines, probably of a young bear (11917), which were perforated, and as they were found with a number of beads made of shell, near the neck of the skeleton, it is very likely that they formed part of a necklace. One of these teeth is figured (Fig. 29). Several shells of turtles (*Cistudo*) were found in the graves, and though they do not show any signs of particular use, they may have been rattles, similar to those known to have been used by some of the Southern tribes and still common among the Indians.

Fig. 28.

11898

Pointed Bone, Stone-grave Mound, Miss Bowling's farm. Natural size.

Fig. 29.

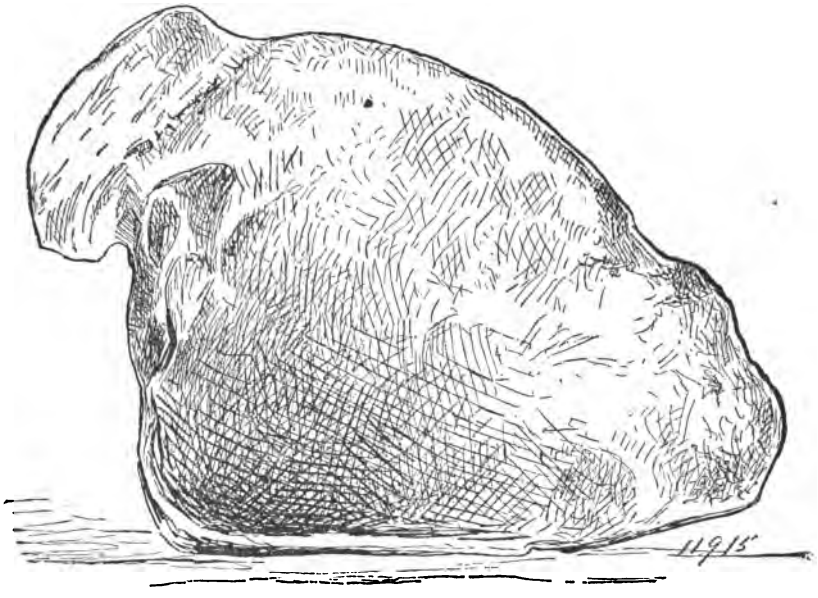
Tooth of a Bear, Stone-grave Mound, Miss Bowling's farm. Natural size.

Of articles made of shells several forms occurred in the graves in this mound, the most common being the spoons made of the valves of *Unio*. These spoons, as will be seen by the illustration (Fig. 30), were very convenient and useful domestic articles. Many of them were found in the graves and generally in such vessels as food would naturally be placed in, but owing to the decay of the thin shell, few could be handled without crumbling into chalky particles. Six were, however, saved from the graves in mound 1, and several others were collected afterwards in different localities. All of those from the graves in the mound were made from the right valves of the mussels, and indicate righthandedness, as the rule, with this people.[5] They were made by cutting away the thick portion of the

[5] I have since examined over thirty of these shell spoons now in the Museum, and all are made from the right valves of *Unionidæ*, and so shaped as to be most conveniently used with the right hand.

shell along the hinge, and also the thin portion of the lip. The shell was then further cut away on its upper part, leaving the projecting handle as shown in the figure, which, from the position in which the spoon was placed by the artist, does not convey as good an idea of the thing itself as would be the case if the drawing had been reversed, and the handle part of the spoon placed in the right lower corner. This would bring the valve of the shell in its natural position and also show the spoon in its most convenient position for use in the right hand. In

Fig. 30.



Spoon made from Shell of Unio, Stone-grave Mound. Natural size.

some specimens the handle is not rounded and smoothly cut, as in the one figured, but is deeply notched on its outer edge as if for ornament.

Many natural valves of several species of *Unionidæ* were found in the graves, sometimes in the same grave with one or more spoons. Several other shells in natural condition were, also, found in the graves. The most numerous of these were two species of *Melania*, and one or two other species of fluviatile shells

common in the State, and, of course, they must have been purposely deposited within the graves, while several specimens of *Helix* were undoubtedly living intruders.

In one grave, near the head, were several hundred specimens (11934) of the little *Olivella*, identified by Prof. Hamlin of the Zoölogical Museum as *O. mutica* Say, of the Southern Atlantic coast. Every one of these little shells, which are not much over a quarter of an inch in length, has the apex ground off, thus making a hole through the shell by which it could be strung, the whole lot in question probably having once formed a necklace, or head ornament of great value to its owner. The occurrence of this and other marine shells is another indication of intertribal intercourse, or of extensive wanderings on the part of this ancient people.

In three other graves in this mound, beads made from marine shells were found. These beads were the same as those obtained from the mounds throughout the country, and have been cut principally from large marine shells, such as *Strombus*, *Busycon*, etc. Similar beads are figured in the last Report, p. 85, fig. 1. Many of the beads in this mound were very much decayed. Those that were collected are of three forms.

In the grave in which the perforated bear's teeth were found was one large, oval, and symmetrical bead, three-quarters of an inch long by one-half an inch in diameter. About one hundred other smaller, well finished beads, with a diameter of about a quarter of an inch and a length of about two-thirds the diameter, formed the rest of what I believe was a necklace, which we could probably reconstruct by placing the large bead and the two bear's teeth in the centre with the small rounded beads on each side.

In another grave in which were several common fresh-water shells, were also a number of beads very much decayed, but about twenty were saved. These are of two kinds, a small rounded form about a third of an inch long, and a flat bead having a thickness of not over an eighth of an inch, and a diameter of about one-half an inch. In another grave was found a single bead like the last described.

In closing this account of the contents of the mound, I must reiterate that not a single article was found indicating contact with any other people than different tribes belonging to their own race, and the same applies to all the other mounds of this important group on Miss Bowling's farm.

Having a desire to make an examination of one of the large mounds, of which there are many still remaining in the Cumberland valley, I accepted the invitation of the Rev. M. A. Matthews to explore one on land belonging to the family of Mrs. Matthews and known, from the name of the family, as the Love Mound.

This large mound is 23 feet high, and, as near as the measurements could be made, owing to the washing of the banks, 155 feet in diameter in a north-south line, and 147 feet in an east-west direction. It is located near the East Fork of White Creek, which flows in a southwestern direction to the Cumberland, entering that river about six miles distant in an air line.

In the immediate vicinity of the mound, on the north, west and south, are large artificial depressions, showing where the earth forming the mound was obtained. The excavations on the north and south have left a slight ridge, about a hundred feet in width and several hundred feet in length, to the eastward of the mound. About two hundred feet to the north of the end of this ridge is a small mound nearly obliterated by cultivation, and about three times the distance to the southeast is an outcrop of limestone. Along this ridge, and towards the limestone ledge, are traces of many stone graves of the same character as those already described. These graves had nearly all been destroyed by continued cultivation of the land, and I found but one that had not been disturbed. This grave was 6 feet long, 22 inches wide and 18 inches deep. The body had been placed in the grave with the head to the west. The skeleton was so far decayed that only a few of the bones could be saved, and the only article found in the grave was a portion of an ear ornament in contact with the side of the skull. This ear-drop was made of a piece of wood covered with a thin layer of copper.

An excavation was made in the centre of the small mound, but nothing was discovered except the indications of a fire a few feet from what is now the surface of the mound.

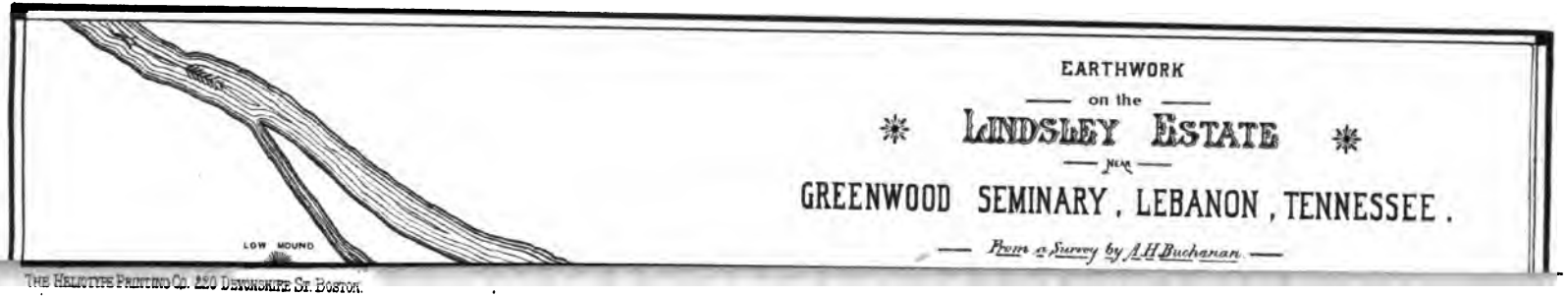
The large mound was a land mark at the settlement of the place, in 1795, by Joseph Love, the grandfather of Mrs. Matthews, and its summit has been used as a family cemetery, which somewhat interfered with the work of exploration.

In 1795 Mr. Love, as reliable family tradition states, "found a heavy growth of timber on the mound, and decayed stumps of red oak trees that were over two feet in diameter." Twenty-five years

ago the mound was cleared of timber with the view of cultivating the sides, but as they were found to be too steep, it was again left to nature. The trees which cover the mound at present are, therefore, less than twenty-five years of age.

Four days, with six to eight men each day, were given to the exploration of this mound, in the following manner. A trench, 4 feet wide and 44 feet in length, was cut on the southern side of the mound in its central portion, and running east and west. This trench was dug to the depth of 10 feet. Two other trenches, 15 feet apart, of the same width as the first, were then started from the first trench. The westernmost of these was carried 11 feet directly north, so as to reach as near the centre of the mound as possible, without disturbing the several graves on the summit. The other trench was carried 16 feet in a northwesterly direction, the two trenches terminating between 10 and 11 feet apart. These two trenches were dug to a depth of 23 feet, when the original black soil was reached, upon which the mound was erected. At the bottom and ends of these trenches, tunnels were started so as to reach the centre of the mound. Eight feet in length was thus added to the trenches, and from these tunnels auger borings, three feet in length, were made in all directions without meeting with the slightest indication of a central chamber or relic of any kind. As it seemed useless to continue the exploration, the trenches were filled and the mound restored to its former shape.

The earth of which this mound was composed had been brought in small quantities, probably in baskets, and the outline of each little load could be distinctly seen on the sides of the trenches. This earth had, through the long period of time that must have elapsed since the mound was erected, become dry and compact and nearly as hard as sandstone. It was, therefore, necessary to loosen it by the pick and much was thrown from the trenches in lumps by the workmen. The fineness of the material, and its freedom from stones and pebbles, were noticed by all at work, and it appeared as if the earth had been carefully sifted before it was placed on the mound. In the nearly five hundred cubic yards of earth removed from the trenches, only the following extraneous things were found. In the long trench, at the depth of 3 and 5 feet, two small fragments of cannel coal, and at the depth of 5 and 6 feet, two small pieces of greatly decomposed limestone. In the two trenches diverging from the one first made, and at depths of 3,



EARTHWORK

— on the —

LINDSLEY ESTATE

— near —

GREENWOOD SEMINARY, LEBANON, TENNESSEE.

— From a Survey by A.H. Buchanan —

THE HELIOTYPE PRINTING CO. 250 DEVONSHIRE ST. BOSTON.

5 and 8 feet, four small pieces of limestone and a fragment of flint were found. At 14 feet a piece of the shell of a *Unio* was discovered, while three or four flint chips and as many minute pieces of sand and limestone were thrown out at various depths. In the trenches near the centre, at a depth of 13 feet, were found three slabs of decomposed limestone each of about 12 × 18 inches, and 1 inch in thickness. The position in which these stones were found was such as to indicate that they were part of a circle of stones around the centre of the mound when it had reached the height of 10 feet. The decayed condition of these slabs of limestone and the formation, on the under side of each, of a thick scale of red oxide of iron, are indications of the great age of the mound itself.

The results of the exploration of this mound lead to the supposition that it was erected for some other purpose than as a monument over the remains of the dead, and, as the remains of numerous graves near it indicate a settlement at this place, it is very likely that it was devoted to some other important purpose of the people of the town.

The most important of my explorations were those within the Earthwork near Lebanon, in Wilson Co., and about sixty miles east from Nashville. At this place on the farm of Dr. Samuel Crockett, included in the estate of the Lindsley family, who were early settlers in the county, are the remains of an extensive settlement of the Moundbuilders of Tennessee. Accepting the kind invitation of Mrs. N. Lawrence Lindsley, Principal of the Greenwood Seminary, I was enabled by her coöperation and the assistance of Mrs. Henry Lindsley, Dr. Crockett, and twenty-five workmen, to make, in a week's time, a comparatively thorough exploration of these remains, for an accurate survey of which, reproduced on the accompanying map, I am indebted to Prof. J. H. Buchanan of Lebanon.

As will be seen by an examination of the map, Spring Creek, a tributary of the Cumberland, makes at this place a bend to the eastward, where there is a limestone bluff. In this bend, near its narrowest part, is located an earthwork enclosing an area of between ten and eleven acres, and having its greatest length, of about 900 feet, in a north-south direction, and a width from east to west of about 650 feet. At nearly regular distances along this embankment, on the inside, are slight elevations at the angles of the earthwork. These are now 18 inches higher than the embank-

ment between the angles, and slope uniformly to the bottom of the ditch, which was originally, probably, between 3 and 4 feet in depth. Between the angles, the top of the inner wall is now not much over a foot above the general level, and the slope to the bottom of the ditch is divided into two parts by a level bench nearly 3 feet in width. The outside slope of the ditch, throughout, is uniform from top to bottom, and along its outer edge is a crest about 6 inches high. The sections at the bottom of the map illustrate this structure; *a*, the outer, and *b*, the inner side of the ditch. At the eastern and southern portions of the enclosure are three causeways or openings through the embankment. Near the northwestern end, between the embankment and the creek, is a low mound, the existence of which I was not aware of until the survey was made by Prof. Buchanan, after the rank vegetation, which covered everything at the time of my visit, had been destroyed by the frosts. At this portion of the enclosure and to the southeast, the land is very low and in the time of spring floods must be washed by the overflow from the creek. To the westward the land rises, and at the southwestern corner of the enclosure there is a rocky portion 20 to 25 feet higher than along the eastern embankment. Still further to the southwest, near the creek, the land is 30 feet higher than at the point near the creek on the northern side. On this southern bluff are six mounds, only a few feet in height, situated as shown on the map. Two of these mounds I caused to be trenched, and found that they were constructed of earth and stones which had subsequently been heated and burned by long continued fires, and there was no indication of their having been used for any other purpose. In the ditch, on the western side, is a large elm tree 4 feet 2 inches in diameter. On the summit of the large mound within the enclosure were several large trees, among them a poplar 2½ feet in diameter and a Hackberry 2 feet in diameter.

Many other trees of considerable size were growing within the enclosure and several large trees had fallen and gone to decay. While this tree growth does not, in all probability, give any approximation to the period when this ancient town was deserted, it at least points to a time before the intrusion of our own race, and everything found within the enclosure was confirmatory of the antiquity of the place. To the east of the embankment there is a depression following the curve of the wall on that side, indicated

on the map by parallel dotted lines, which looks like a former channel of the creek; and it is very likely that when the earthwork was made, the creek flowed near the eastern wall, and has since cut its way four or five hundred feet farther to the eastward. The geological structure, contour of the land and direction of the natural flow of the creek, are all favorable to such a change in the course of centuries.

The first object of attention within the enclosure is the large mound marked *A* on the map, and also shown in section at the bottom. This mound, as shown by the section (the shaded part in which represents the portion excavated), has steep sides and a flat top. Its dimensions are 138 feet by 120 at its base, and 95 by 75 feet on its summit, with a height of 15 feet. A trench was cut from the base of the eastern side and carried to the centre; beginning with a width of 4 feet and gradually widening to 14. After the centre was reached that portion was deepened to 18 feet from the summit, thus digging down 3 feet in the original soil, consisting of yellow gravel and clay, which was found to have been previously undisturbed. The earth of which the mound was composed was very hard, dry and compact, and necessitated the use of the pick. The construction was the same as that of the Love Mound. At a depth of between 3 and 4 feet from the surface, near the centre, were found three slabs of stone, each about 12 × 16 inches, a stone chip, piece of mica, fragment of pottery, and a discoidal piece of sandstone (Fig. 31), with several grooves upon its surface, indicating that it had been used as a sharpening stone. At a depth of between 7 and 8 feet was an ash bed that had evidently extended over the surface of the mound when at the height of 7 feet. In this bed of ashes were fragments of burnt bones, stones, and pottery; a discoidal stone, an arrowhead, flint chip, portion of a shell of a *Unio*, several burnt corn cobs, a piece of charred matting, charcoal, etc. Under the ashes the earth was burnt to a depth of a few inches, showing that the ashes were the remains of a fire on the spot and not material brought to the mound. At the depth of 13 feet, a piece of cedar, a few inches in diameter and much decayed, was found standing upright, with its base below the surface of the earth upon which the mound had been erected. Between 14 and 15 feet, and thus on, or close to the original soil, was another extensive bed of ashes, in which a few burnt bones of deer and pieces of charcoal were found.

The examination, therefore, showed that this was not a burial mound and the two fires that had been made, with the relics found in the ashes, lead to the supposition that it was erected in connection with some peculiar rites celebrated at two periods during its construction. The place may have been the site of an important building. It is very likely that one stood upon the summit of the mound and that all traces of it have been washed away after the decay of the structure, as would be expected upon such an exposed position.

To the southeast of the large mound, was one, marked *C* on the map, which was nearly 3 feet in height and 47 in extreme diameter, having a slight central depression 26 feet in diameter. On removing the earth, this mound was found to contain sixty stone graves, arranged in the form of a hollow square about the outer portion of the mound, in two or three irregular rows and in three tiers. The graves were carefully made with large flat stones, in the same manner as those I have already described, and were all of large size. The examination showed that, with the exception of one child buried in the same grave with an adult, all the bodies were adults and had been placed at full length in the graves. The grave containing the bones of the child with those of an adult person, was in the lowest tier and among the first made. In this grave was found a large dish made of pottery like the one represented in figure 34, and in this dish was the bowl (Fig. 32), reproduced of one-half its diameter. A small discoidal stone (Fig. 33) was also found in this grave and is shown of natural size. Near this grave, on the inner side, were found the remains of a body that had not been enclosed in stone, and this was the only instance of the kind in the mound. The skull belonging to this skeleton was

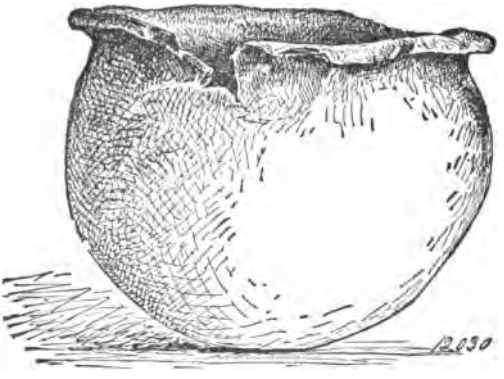
Fig. 31.

Sharpening Stone from Large Mound within Earthwork. Natural size.

saved (12003). In the lowest tier of graves was one that contained the remains of two skeletons, the skulls of which were saved (12014, 15). The only article found in this grave was a dish similar to No. 12009, which is figured.

In another of the graves of this lowest tier, in which the skeleton was much decayed, the following articles were found. A jar (12008) at the feet of the skeleton; near it the dish (12009) of which figure 34 is a representation, reduced to one-half its diameter. With the bones of the hand was a pipe (12011) made of sandstone, which is shown of full size by figure 35. In the dish was a large bone of a deer's leg (12010), which had been cut and

Fig. 32.



Bowl from grave, Burial Mound within Earthwork. ½.

broken, and near the dish was a small mass of graphite (12012), a pebble and a flint chip (12013).

In another of the graves of this lowest tier, were found the following articles. An ornament of very thin copper (12021) which was originally circular and with a corrugated surface. Only fragments of this could be preserved, and its full size could not be determined, though it was probably 4 or 5 inches in diameter. An earthen pot (12025), a dish (12024), and the skull (12022) were also secured. The remainder of these oldest graves in the mound yielded only fragments of pottery. As the earth of the mound was very damp, the pottery was soft and the bones were much decayed, so that great difficulty was experienced in taking the

articles out, and it was necessary to have the pottery carefully dried before it could be handled.

Several of the skeletons showed the effects of inflammatory diseases, and a number of specimens of pathological interest were obtained.

In the middle and upper tiers several graves were found containing relics. In one were portions of an ornament, circular in shape and about 5 inches in diameter, made of two sheets of copper closely united (12023), similar to that found in one of the oldest graves, and like that, also resting on the breast bone, which, with the ribs, had been discolored and preserved by its contact. In this grave were also three delicate and well-made arrowheads (12020) and an earthen pot (12019, Fig. 36).

Fig. 33.

Discoidal Stone from grave, Burial Mound within Earthwork. Nat. size.

In another grave were found three articles of pottery, viz.: a vessel with handles (12034), a large dish (12035), and the water jar (12033) of a pattern similar to others found, and represented by figure 37.

A similar jar of slightly different shape (Fig. 38), having the surface divided into portions as if designed after a gourd, was found at the feet of a skeleton.

Figure 39 represents a potsherd (12005) taken from one of the graves. This is probably a portion of a small bowl, and is an attempt, it seems to me, at a reproduction of the head of a bat, the features of which are more apparent in the fragment than in the figure.

Pieces of mica (12038) were also found in one of the graves, and in another was a pipe (12040) carved from a dark slate (Fig. 40), which is of interest from its resemblance in form to pipes of recent manufacture.

In the earth between the graves, numerous fragments of pottery and a few perfect vessels were found. In one of the pots were two of the shell spoons of which mention has been made on a preceding page. A discoidal stone was also obtained. Between two of

the graves, nearest the surface, was found the interesting pipe (11993), carved from green steatite, and representing a man holding a cooking vessel which forms the bowl of the pipe, the hole

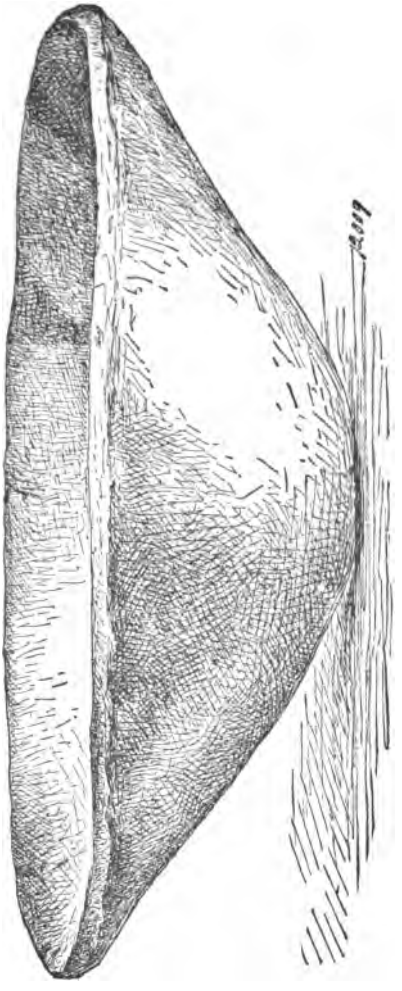
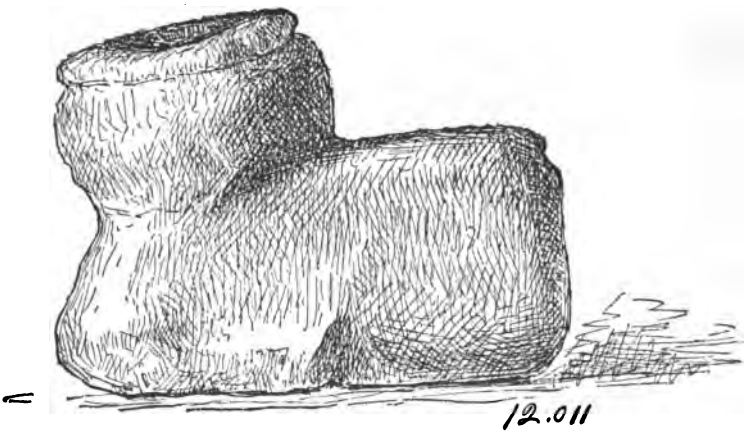


Fig. 34. Dish from grave, Burial Mound within Earthwork. ½.

for the insertion of the stem being in his back. The three views given in figures 41, 42 and 43, will convey a better idea, than words, of this interesting relic. The lower portion of the figure is

Fig. 35.



Pipe made of Sandstone, from grave, Burial Mound within Earthwork. Nat. size.

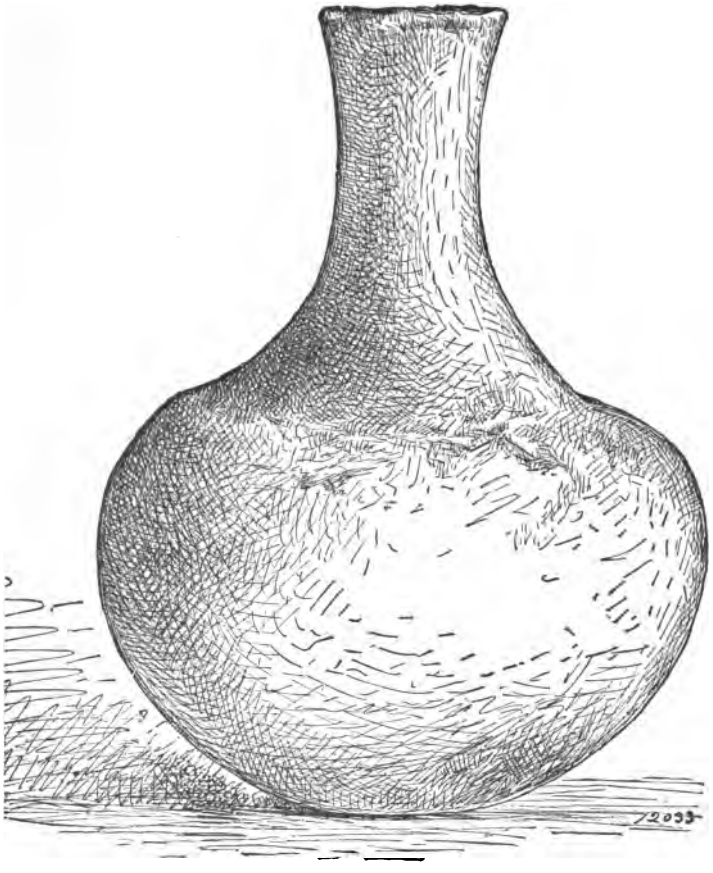
Fig. 36.

Pot from grave, Burial Mound within Earthwork. ½.

left unfinished as if that part had been inserted in a base of some other material, which is also indicated by the hole in the stump of the right leg.

Scattered irregularly within the enclosure are nearly one hun-

Fig. 37.

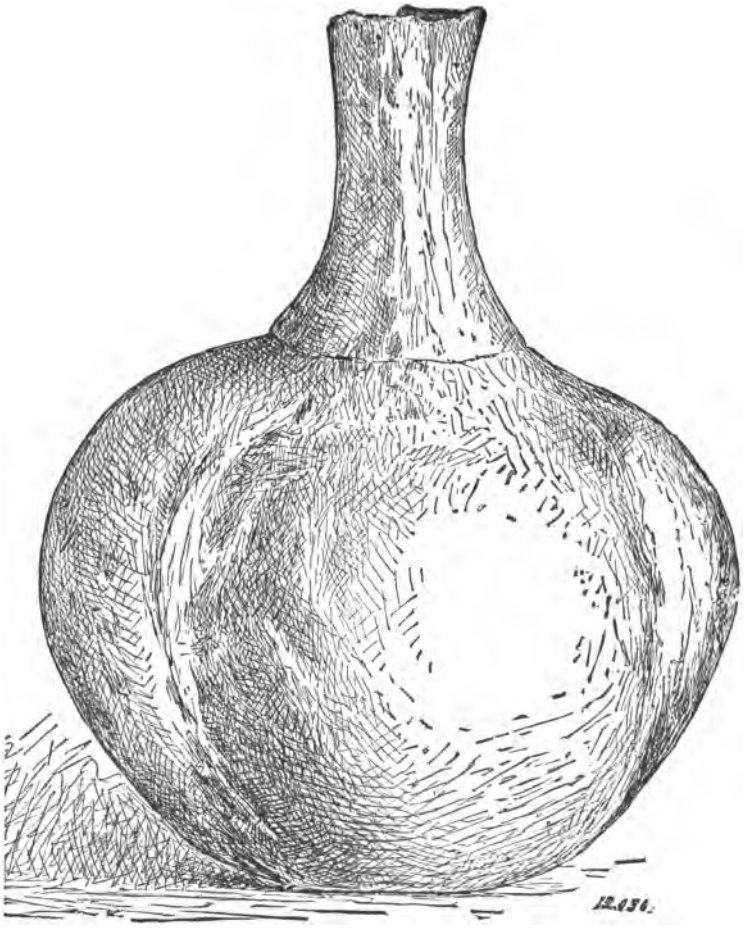


Jar from grave, Burial Mound within Earthwork. ½.

dred more or less defined circular ridges of earth, which are from a few inches to a little over 3 feet in height, and of diameters varying from 10 to 50 feet. The best defined of these little mounds was that marked *B* on the map. An examination of these

numerous low mounds, or rather earth rings as there could generally be traced a central depression, soon convinced me that I had before me the remains of the dwellings of the people who had

Fig. 38.

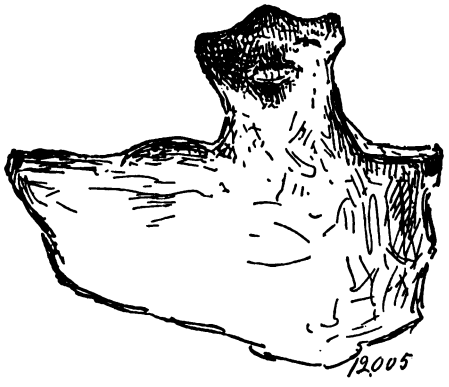


Jar from grave, Burial Mound within Earthwork. ¼.

erected the large mound, made the earthen embankment, buried their dead in the stone graves, and lived in this fortified town as I now feel I have a right to designate it.

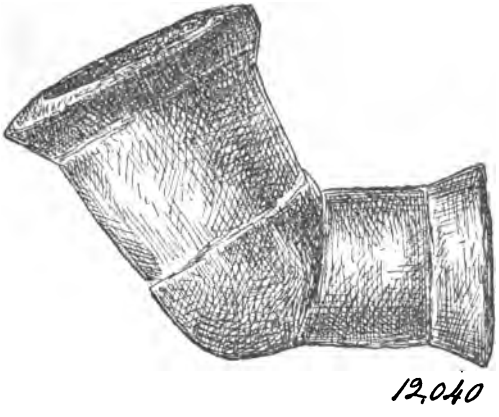
Nineteen of the best defined of these earth circles were carefully explored with very gratifying results, and proved to my satisfaction that the ridges were formed by the decay of the walls of a circular dwelling, about which had accumulated, during its occupancy, such materials as would naturally form the sweepings and refuse of a dwelling of a people no further advanced towards civilization than were these mound-builders of the Cumberland valley. These houses had probably consisted of a frail circular structure, the decay of which would only leave a slight elevation, the formation of the ridge being assisted by the refuse from the house.

Fig. 39.



Fragment of Pottery from grave, Burial Mound within Earthwork. Natural size.

Fig. 40.



Pipe made of Slate, from grave, Burial Mound within Earthwork. Natural size.

After the recent soil within the ridges had been removed, hard floors were discovered upon which fires had been made; while in the dirt forming the ridges, were found fragments of pottery; broken and perfect implements of stone, several discoidal stones, most of which were made of limestone; bones and teeth of animals; charcoal, etc. On removing the hardened and burnt earth forming the floors of

the houses, and at a depth of from one and a half to three feet, small stone graves were found in eleven of the nineteen circles that were carefully examined. These graves were in every case those of children, and were from one foot to four feet in length. In some the bones were entirely decayed, in others a few of the more solid parts of the skeleton such as the shafts of the long bones, the central parts of the vertebræ, and fragments of the crania were preserved.

The tibiæ of one young child in particular are worthy of remark

Fig. 41.

Pipe carved from Steatite, from Burial Mound within Earthwork.

from their extreme thickness and great curvature. These tibiæ of children are not in the least flattened, though some of the tibiæ of adults from the burial mound are.

These children's graves were found at one side of the centre of the house, and generally, it was noticed, that a fire had been built

over the spot, as shown by the burnt earth and charcoal. From them were obtained the best specimens of pottery found within the earthwork, with shell beads, pearls, and polished stones of natural forms, etc., which were probably playthings. In several of the smaller graves were the metacarpal bones of birds, which may have been given to the children to aid the teeth in perforating the gums, as is stated to be the custom among some of the present Indians.

Three small discoidal stones were picked up in the ridges of as

Fig. 42.

Side view of figure 41.

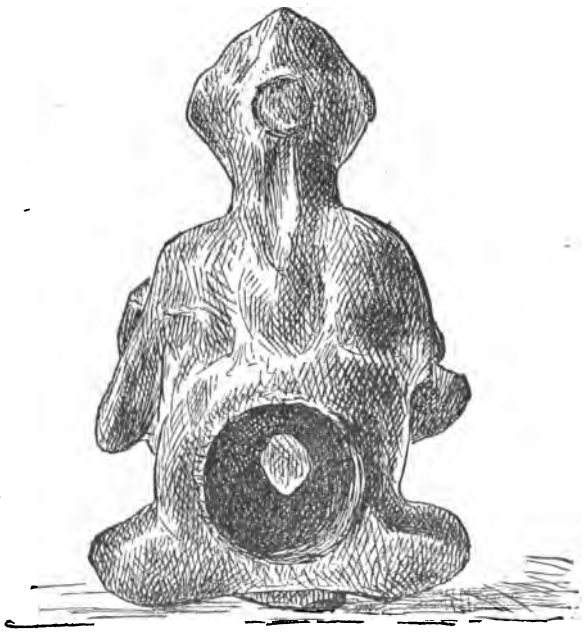
many different houses, and one other was found on the hard floor, while still another was discovered in the burnt earth over a child's grave.

In the dirt forming the ridge of the house designated as No. 3 in my notes, and under the floor of which graves were not found, was a fragment of thick pottery (Fig. 44) with the impression

of a closely woven fabric of coarse threads. Near this was taken out a bowl (12046) with rudely scalloped edges, of which figure 45 is a representation. From the same place was also taken a rude celt (Fig. 46), made of sandstone (12047).

Under the floor of one of the houses was a small grave containing the remains of the bones of two children, and with them the dish (12072), of which figure 47 is a drawing. No other article was found in this grave, over which a fire had been made, and in the

Fig. 43.



Back view of figure 41.

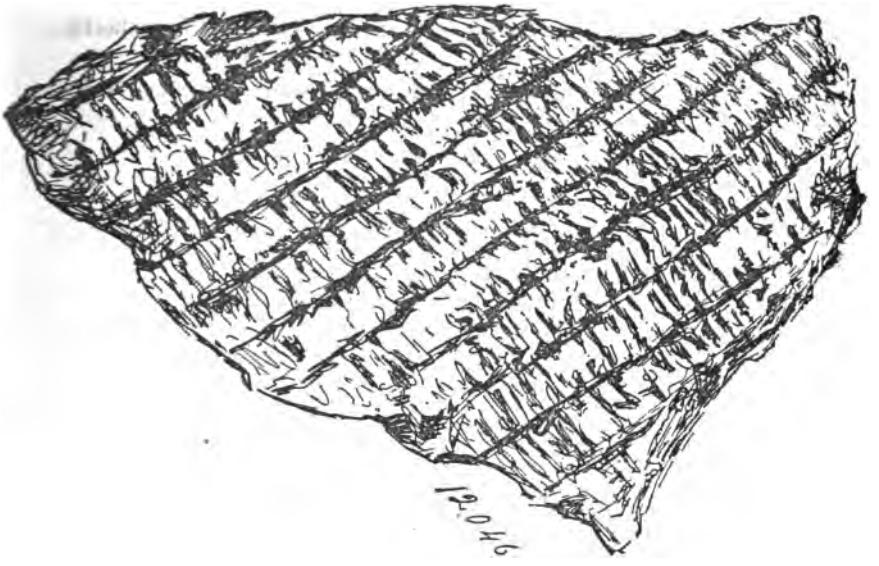
ashes were burnt animal bones, a discoidal stone and several fragments of pottery.

Within the area covered by another house, three burials had taken place, and from these graves were obtained two earthen vessels, a discoidal stone, a dish, and a few shell beads.

Three other houses contained graves of children in which were found several articles worthy of note, and evidently of considerable

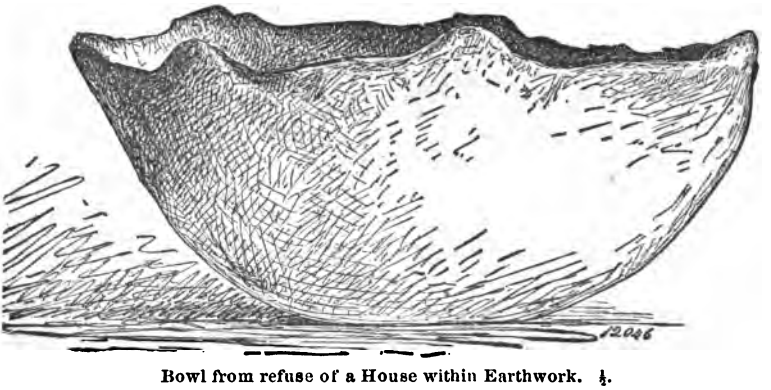
value. Under the floor of one of these houses, two graves were discovered, one of which was made simply by placing two stones

Fig. 44.



Fragment of Pottery from refuse of a House within Earthwork. Natural size.

Fig. 45.



Bowl from refuse of a House within Earthwork. ½.

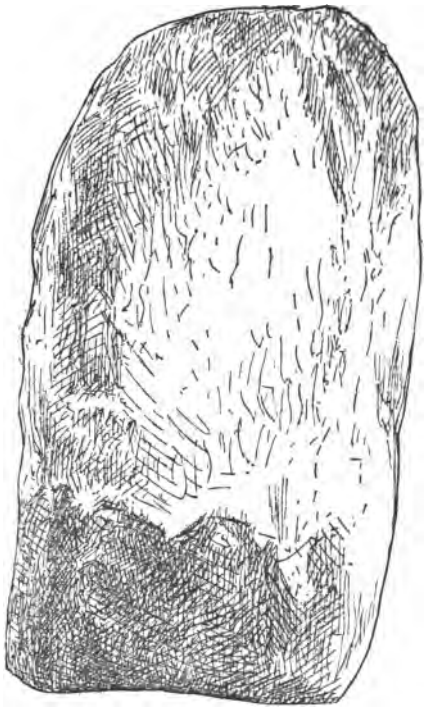
about eight inches apart, and was without the usual pavement at the bottom, or the covering and end stones. This contained the

remains of an infant buried in ashes, though the bones were not burnt, and two broken vessels of ordinary form.

In the other grave was a similar vessel (12062, Fig. 48), an awl, or pointed implement of bone (Fig. 49), and another made of deer's horn, the leg bone and a vertebra of a bird, and five shells of *Unio*.

Another house, located near the large mound, contained two

Fig. 46.



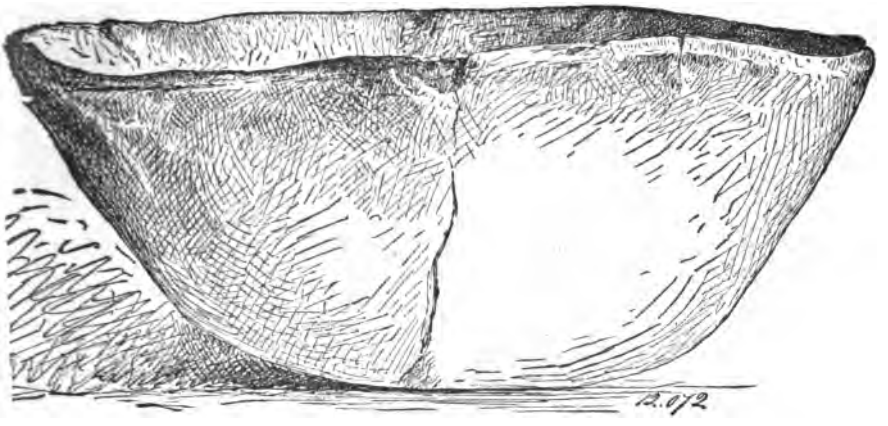
Celt of Sandstone from ridge of House within Earthwork. Natural size.

graves, in one of which was found a water jar mounted on three hollow legs, the cavities of which connect with the body of the jar, while the cross bars between them are solid. This jar (12093) is shown, of one-half its diameter, in figure 50.

The other grave in this house was remarkably rich in relics, and contained an earthen pot (12086), a bone of an animal (12087),

the shell of a *Unio* (12088), two large shells of *Busycon* (12089) from the Southern Atlantic coast, from which the columella had

Fig. 47.



Dish from grave of a child in a House within Earthwork. ½.

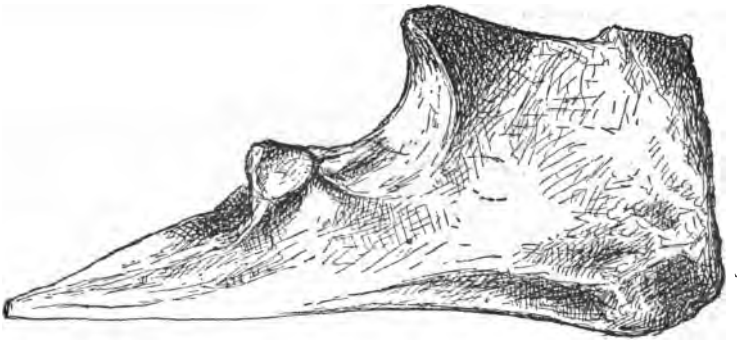
been removed, and a large lot of small shell beads (12091), of which six hundred and fifty were collected and many more were in fragments. These beads would have formed a chain several feet in length, as one hundred of them measure eighteen inches. With these shell beads were seven perforated pearls (12092) of large size, among them one which is nearly one-half an inch in diameter; also several handsome pebbles (12090) of quartz, chalcedony, etc., and a piece of the stem of a fossil crinoid.

Fig. 48.

Pot from grave of child in a House within the Earthwork. ½.

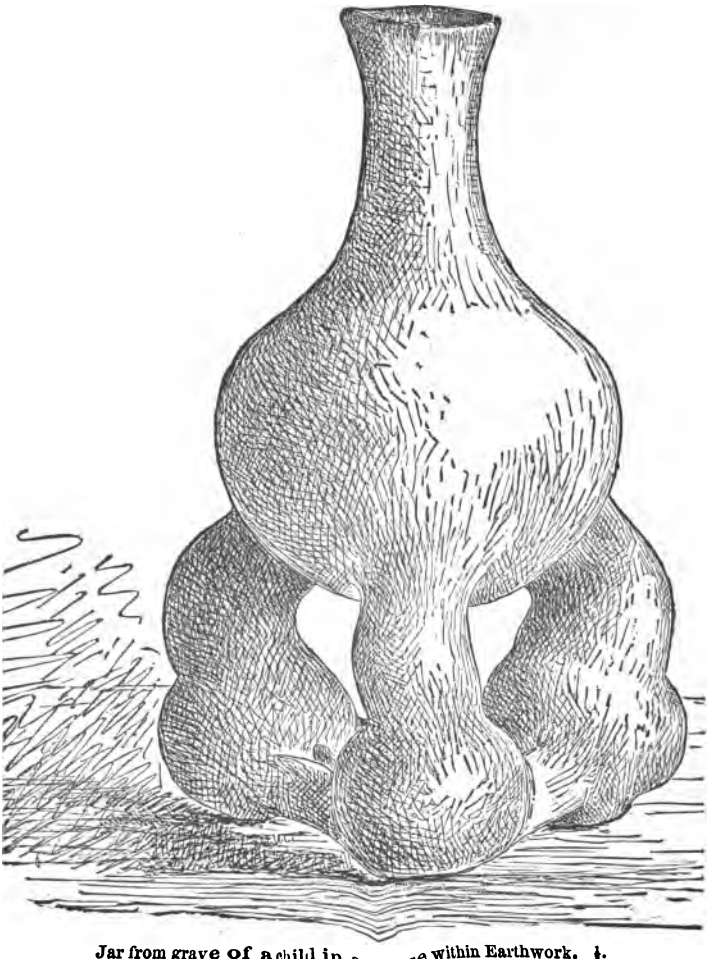
The last of the houses examined, which was also located near the large mound, contained the graves of an infant and of two other children. In the grave of the infant, the only

Fig. 49.



Implement of Bone, from grave of a child in a House within Earthwork. Nat. size.

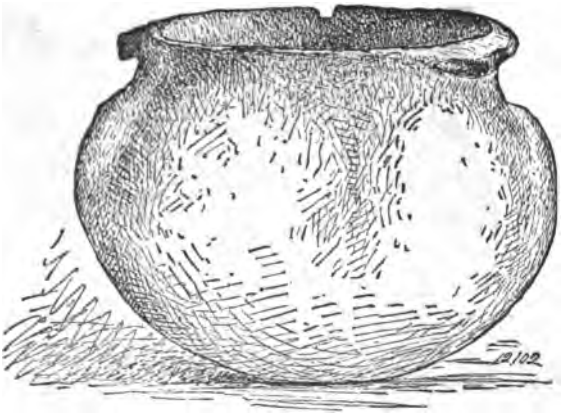
Fig. 50.



Jar from grave of a child in a House within Earthwork. ½.

article found was an earthen pot (12101), represented by figure 51. The second grave contained a dish (12096), and the small pot

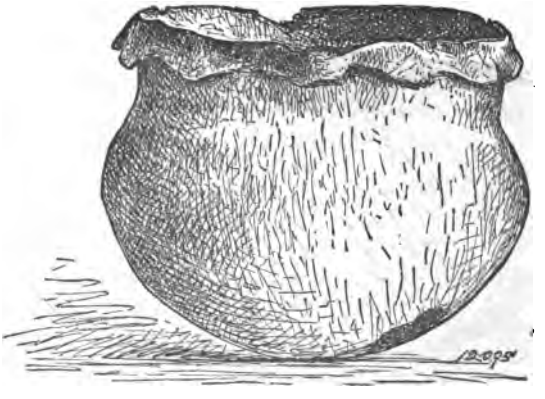
Fig. 51.



Pot from grave of a child in a House within Earthwork. ½.

(12095) with ornamented edges, shown in figure 52. The third grave was remarkable for the three well-made articles of pottery

Fig. 52.

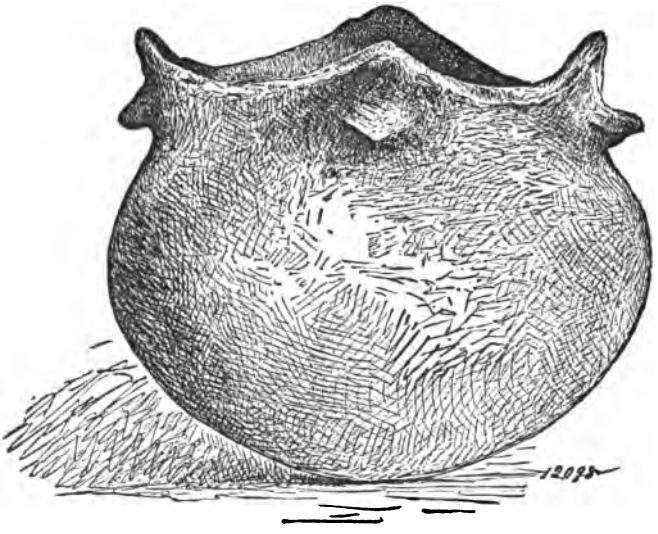


Pot from grave of a child in a House within Earthwork. ½.

which it contained. These are represented, of one-half their diameter, by figures 53, 54 and 55. The pot shown by figure 53, is

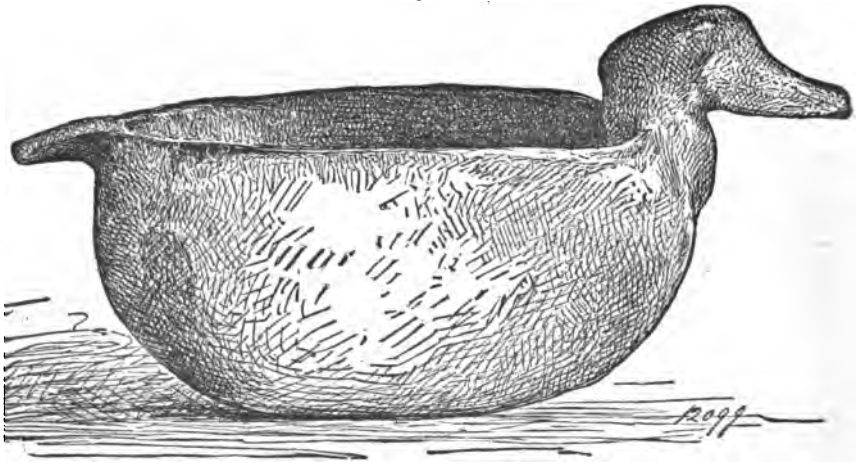
a symmetrical vessel, with deeply scalloped edge and with a pro-

Fig. 53.



Pot from grave of a child in a House within Earthwork. ½.

Fig. 54.



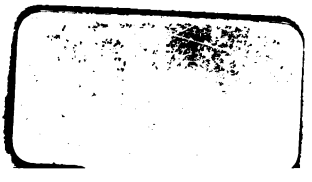
Duck-shaped Dish from grave of a child in a House within Earthwork. ½.

jecting portion under each point of the scallop. Figure 54 is a

well executed design of a duck-shaped bowl, while figure 55 represents a water jar in the form of a bear. This last is the only article of pottery obtained within the enclosure at Greenwood that was not of the ordinary blue gray color, like the majority of the pottery from Tennessee, Missouri, etc. The surface of this jar is

Fig. 55.

Painted Jar, from grave of a child in a House, within Earthwork. ¼.

of a yellowish color, and on this had been painted a number of concentric figures, which were perfectly apparent when the jar was first removed from the grave, but, as they had not been burnt in, they scaled off in drying and are now only faintly indicated. This interesting jar, with others that are here figured, is evidence of the

high attainments of this ancient people in the ceramic art, and shows the development reached in native art by people who worked in copper, carved in stone and shell, moulded in clay, wove fabrics of several kinds, cultivated maize, lived in walled, or fortified towns, buried their dead in an extended posture, generally in stone graves, and erected the large mounds of the Cumberland valley, from which they are now known as the Mound-builders.